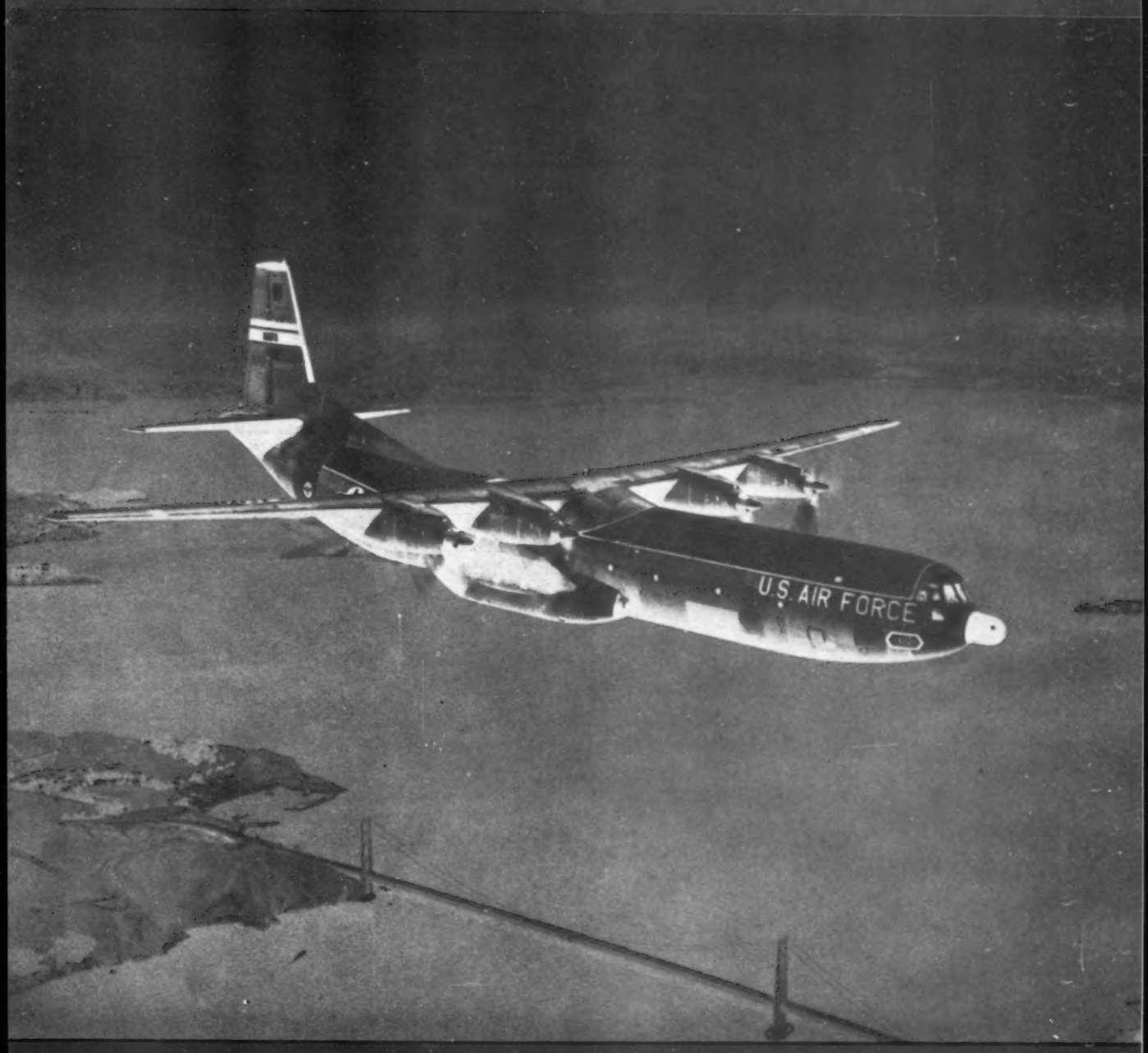
The MAC Flyer

OCTOBER 1979



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For Greater Safety and Efficiency
in MAC Air Operations.

The MAC Flyer

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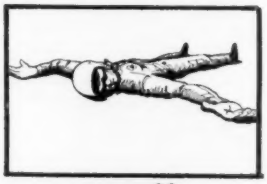

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The System Is Sensitive

Like the young cajun in the old joke who didn't speak a word the first few years of his life until one day at breakfast, when he finally became vocal to register a complaint about the toast being burned, most of us say nothing as long as everything is okay. Every so often, though, somebody takes the trouble to tell others what's *right* with something, and it is refreshing to say the least. The following letter of thanks points out just how responsive our giant worldwide airlift system can be to the needs of individual people. It strikes a positive nòte at a time when most people are disenchanted with government bureaucracy in any shape or form, and it offers some food for thought. Names of individuals and specific units are purposely omitted, but if some of the comments sound familiar, it's probably because MAC people are providing this same kind of assistance around the globe on a daily basis.—*Ed.*

"In the past year I have had to return to the United States on three occasions due to severe illness and death in my family. On each occasion you and your personnel have been extremely empathetic to this situation, and very prompt and professional in the performance of related emergency actions insuring that my travel was as quick and direct as possible. I am very grateful to be part of such a 'caring' command and write to express my gratitude as well as commend you and your staff.

"In addition, I would also like to report on the equally cooperative and skilled performance by various members of the airlift team. All too often we are quick to complain about nonsupport and bureaucratic red tape, while being slow to realize the outstanding services which are provided. In a small detachment such as ours, personal care is more common because we often know each other. When this same concern is shared by people outside our small sphere of personal contact, however, it is indicative of good people in a good system. In my recent experiences I have found nothing but professional people willing and able to serve. There are numerous individuals who have been particularly sensitive to the needs of myself and my family, and have continually provided excellent guidance and service.

"At a time when military benefits seem to be eroding, and with continual talk about further reductions in privileges, it is sometimes beneficial to look at things from a different perspective. In this light, it seems clearer than ever to me that the backbone of the services is in its people and not in its schedule of benefits. As long as we maintain a force of people who know their job and care about it and other people, the military community will remain strong and close knit. This has been my experience during these problems and I am proud and gratified to serve with people of this caliber."

Name and address withheld by request.

Number One and Still Going Up!

Reverie at the Museum

A quiet meeting with an old friend brings back bitter-sweet memories for a MATS crewmember.

by Clata Winningham Finn
2989 Overbrook Cove
Memphis, Tennessee 38128

Museums remind me of graveyards. Both are repositories for the obsolete, where lifetimes are reduced to a few vital statistics displayed on chiseled marble slabs or neatly lettered placards. Here at the Air Force Museum this comparison seems particularly apt.

I walk past exhibit after exhibit tracing the history of flight without seeing your familiar frame. My heart beats faster as I dare to hope that you have somehow escaped this place—that even now your engines strain for max power as you pause impatiently at the end of some runway, waiting for the control tower to clear you for takeoff.

And then I see you, in a distant corner where only a stray beam of light betrays your presence. "Why has one who served so faithfully been banished to the shadows?" I ask the attendant.

"Patriotic citizens," he replies, "come to pay homage to fighters and bombers. They have little interest in transport planes."

Like a winged corpse waiting to be borne aloft you stand—painted, polished and preserved. Gone are the yellowish-black stains from countless oil leaks. Grease prints from mechanics' hands have all disappeared. The throbbing of your engines that was once my lullaby is now a half-remembered tune. Sterile and lifeless as a model in some giant's toy shop, you wait. For what? For resurrection? That is only a fairy tale for children.

Are the years of my life that were spent with you interred here also?

I cannot stand apart from one whose features I know as intimately as my own. Lower the rope. Give us a little time alone, time to convince myself that she is dead, time for a silent benediction. There is no need to close the door.

Here inside you I feel at ease, at home. The smells of life still escaping from your pores are testimony to your continuing viability. Each smell brings an image from the past, a past I thought was dead. . .

Hydraulic fluid, ethyl glycol, and gasoline
Brought by trucks with long fat hoses.
Chemical compounds for your sustenance, supervised by grizzled crew chiefs who always "put on a little extra for the wife and kids."

Faint scents of sulfur and chocolate
Coal and candy bars in a continuous black stream, flowing to break a blockade. How many chimney pots line the Corridor to Berlin?

Animal smells of urine, feces, musk
Fill the cabin and creep under the cockpit door. Rhesus monkeys stretch from India to Texas. Will this flight never end?

Odor of burning kerosene
Clearing the sinuses and permeating the skin, brings back the chill of desert nights. The hours until morning are spent counting neon stars, while beyond the shadows arthritic camels stir and moan.

Stench of smoke from stale cigars
Butts dropped to the floor by corpulent generals and State Department officials—disciples of John Foster—carrying 'Brinkmanship' in flat black briefcases. In our political naiveté we believe this carte blanche to the world.

Tantilizing fragrances of plumeria and ginger blossoms
Hitching rides on ocean breezes. Mynah birds tease with their wolf whistles as black sands bark at our heels. Do the men in the Arizona remember us?

Hot roasted peanuts
Hawked at dawn by barefoot Portugese men, while the same gray fog Columbus saw lifts to reveal hillsides draped in blue hydrangeas.

A stench like rotting cabbage
Rises high over Gulf Coast pulp mills while one of your lovers swings by a strap from your undercarriage to release jammed landing gear and save your skin from rupturing on the concrete.

Sweat and vomit, sour and rancid
Violate the white robes and headdress of Allah's faithful on their pilgrimage to Mecca. Eyes burning from the reflection of sun on sand, we stand watching as men crowd like cattle into your cabin.

Gun oil and shoe polish—shoe polish and gun oil
Alternate, as row after row of smooth-cheeked troopers 'spit-and-shine' away the tedious hours to, ' Just a police action.' They are replacements for all the GIs waiting to return home—stacked shoulder high on the landing strip while the sick-sweet odor of decaying flesh seeps from their body bags.

Fermenting tropical fruits—papaya, banana, coconut milk
Intoxicate, near where the Amazon and the Rio Negro join to share a bed. Sun glints on metal in a jungle clearing and we wonder aloud how long it would take for piranha to consume a man. In Bélèm at the opera house our fingers trace letters engraved in bronze plaques that spell out the names of artists —Pavlova, Caruso, Bernhardt.
Mementoes of the nights they performed for German rubber barons. The caretaker locks the door behind us and we walk around pigs snuffling in garbage at the foot of the stairs. In a nearby shop a shrunken head with disturbingly familiar features hangs.

The smell of fresh blood
That dries to reddish-brown on the upholstery. Blood from young Hungarians who threw their Molotov cocktails and fled. Sister countries gave only 'safe-passage' so they climb aboard you with hope for freedom as their only baggage. We fancy that Liberty's torch burned brighter those nights.

North Atlantic ice storm and a gale wind
Battering against your nose, one engine feathered and gas gauges galloping toward EMPTY as flight engineers—armed with desperation and argus lamps—crawl the narrow confines of your wings to battle nature's fury. No word is spoken as we sniff the air and smell fear.

Fresh clean smells of Aqua Velva and bay rum
Liberally applied by graying sergeants and majors whose golden leaves have begun to tarnish. They have heard through the grapevine that you are inbound for the last stop on your farewell flight. Those who have known you long and intimately gather to share one last poignant moment. Your door opens to cheers and the smell of whiskey. Canadian whiskey in imperial quarts. Crew bottle. Pass the communal cup (strange how it tastes of salt) as we drink a toast to life. Eternal life!

"Time to go," you say. I quite agree. I won't need to come here again for you have shown me there is no death as long as memory serves.

ABOUT THE AUTHOR

Mrs. Finn enlisted in the Air Force in 1952 and began flying as a flight stewardess with the 6th Air Transport Squadron, Brookley AFB, Alabama, aboard C-74s (see August 1978 Airlift Legacy). On her first flight hers was the 13th name on the 13-person crew list aboard C-74 number 5413. Contrary to the misgivings of some of her crewmates, nothing unusual happened on that flight. In 1954 she was transferred to Kelly AFB, Texas, where she worked aboard C-54s until her discharge. She reupped in 1955 at Palm Beach AFB, Florida, as an instructor with the 1709th Tech Training Squadron, and flew weekends on C-54s, C-97s, C-118s and C-124s. Her last assignment was to C-121s at Charleston AFB, South Carolina, where she met and married Captain Gerald Finn. She presently resides in Memphis, Tennessee, with Jerry and their three children.

Wild Cherry Ride

Maj Paul Wilson, Det 10, 37 ARRS, got more than his share of excitement on his first mission—his "cherry ride"—as a Huey AC. Maj Wilson, Capt Bob Ziehm (a flight examiner flying as copilot), Flight Surgeon Lt Col Fred Fishburn and Medical Technician SSgt Bill Hill were launched on an urgent medevac mission for a military member who had collapsed while running in a marathon near Ogallala, Neb.

The flight to the small Nebraska town was uneventful and the Huey crew picked up the patient and headed back to F.E. Warren AFB, Wyo. The weather was good and the return flight should have been an ideal ending to Maj Wilson's first mission in command. But while heading westward at 300 feet and 70 knots, the crew noticed the engine's rpm and fuel flow starting to fluctuate. Suspecting engine failure, Maj Wilson quickly lowered collective, saving valuable rotor rpm, and turned the Huey toward a wheat field. He then transferred control to Capt Ziehm, because of his greater helicopter experience. Capt Ziehm guided the H-1 to a perfect autorotative landing as the engine rpm wound down to zero. The patient was taken to a nearby hospital by ambulance.

Maj Wilson and Capt Ziehm were awarded the MAC Distinguished Individual Safety Award for their immediate recognition and reaction to a critical inflight emergency.

Navigation Award

Capt Edward B. Cush, 55 ARRS, Eglin AFB, Fla, received the 1978 Superior Achievement Award as a practicing navigator from the Institute of Aviation. Capt Cush was responsible for the safe recovery of an OV-10 Bronco, helped plan the transatlantic flight of three HH-53s and navigated the first deployment of A-10 Thunderbolts to Europe. His navigation techniques have been adopted for future A-10 deployments.

New Aircrew "Attaperson"

The latest revision to MACR 900-3 (presently being processed through publications channels) establishes a new award specifically designed to recognize aircrewmembers who successfully cope with a serious inflight emergency, thus preventing an accident. The new award is called the MAC Safety Award for Excellence in Airmanship and consists of a handsome wooden plaque with a MAC crest and appropriately engraved plate. Crewmembers are nominated by their commanders through command channels to HQ MAC/IGF. Individual flyers or crews may be nominated by any MAC unit, and those approved for the award will be submitted for a USAF Well Done Award. Additionally, every nomination will be considered as material for a "Good Show" article in the *The MAC Flyer.*

Hot Helicopter Heroics

Capt Charles R. London, 2d Lt Michael J. Maffel, and SSgt Randy A. Still, all from the 67 ARRS, recently received the MAC Distinguished Individual Safety Award for quickly and effectively handling an inflight cockpit fire.

On a local training flight in their HH-53, Capt London and crew were surprised when the copilot's anti-icing control relay, located by the copilot's right leg, exploded and started burning. Flames shot up to 18 inches from the top of the relay and smoke rapidly filled the cockpit. Capt London immediately recognized the problem and shut down the system. SSgt Still instantly grabbed the fire extinguisher and handed it to the copilot who put out the fire. Smoke and fume elimination procedures helped clear the anesthetizing and irritating fumes of the fire extinguishing agent while the Jolly Green crew declared an emergency and descended to VFR conditions. After breaking out of the weather at 1,000 feet, Capt London landed the HH-53 without further incident.

Roll of Honor Revised

When we put together our list of accident-free units for the July issue of *TMF* we inadvertently left out three units with long and outstanding safety records. Joining the 100,000 flying hours accident-free list is the 327 Tactical Airlift Squadron (AFRES), from Willow Grove, Penn. Also deserving accolades are the 53 Military Airlift Squadron, Norton AFB, Calif, for over 200,000 hours accident-free, and the 57 Military Airlift Squadron, Altus AFB, Okla, which recently completed more than 250,000 accident-free flying hours.

Alaskan Stars

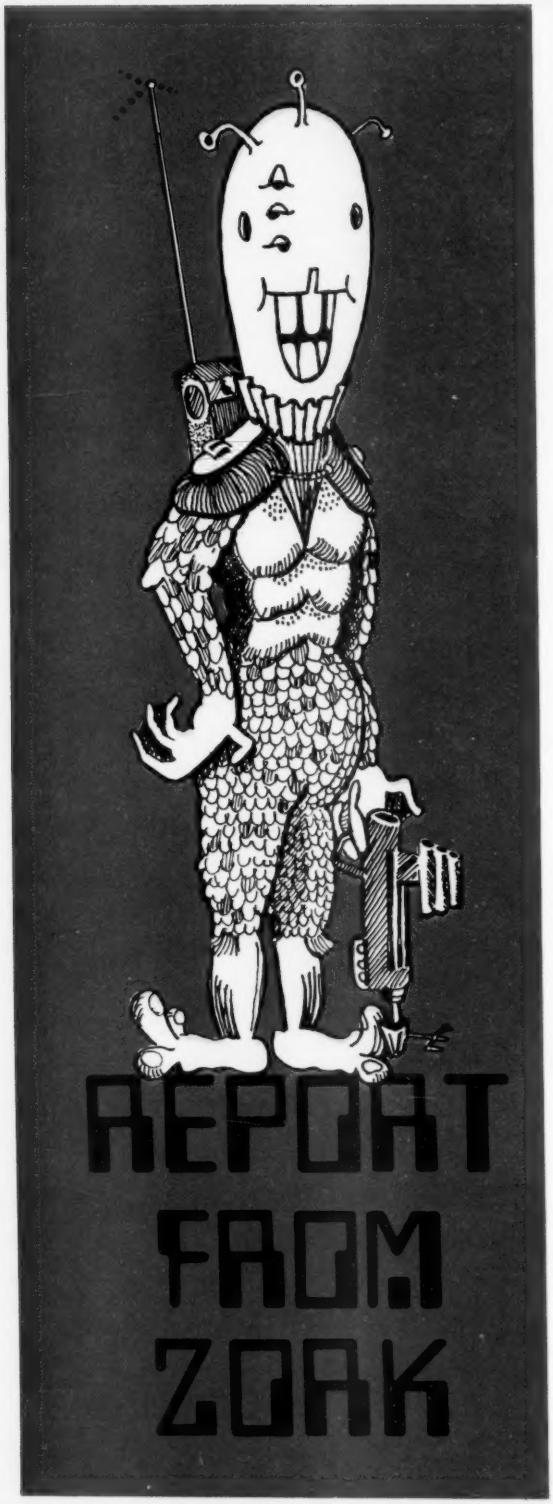
Two aircrewmen serving in the 49th State have won top honors from MAC: MSgt Terry L. Wetzel, 71 ARRS, was chosen as one of Military Airlift Command's top airman of the year; and Capt Leo B. Wegemer 17 TAS, was picked as the Military Airlift Command's Junior Officer of the Year for 1978.

Eighteen people are alive today because of MSgt Wetzel's pararescue expertise and extraordinary efforts which saved them from the Alaskan wilderness. His heroics helped earn him honors, not only as one of MAC's five top airmen, but also as one of the 12 Air Force Airmen of the Year for 1978.

Capt Wegemer is a C-130 lead navigator with the 17 TAS, also at Elmendorf AFB. During 1978, he was a distinguished graduate of SOS and completed his master's degree. Among his many other achievements, Capt Wegemer set up an information program in cooperation with Lockheed illustrating specific capabilities and performance limitations of the C-130 for his squadron. Additionally, he was active in the community, working on the squadron's annual Arctic Village Christmas Project. The project collected over 6,700 pounds of food, clothing, and toys for distribution to remote Alaskan villages.

Capt Leo B. Wegemer, 1978 MAC Junior Officer of the Year.

MSgt Terry L. Wetzel. A USAF Airman of the Year for 1978.



STARDATE: 5739.4
ALIEN CONTACT REPORT
FROM: Zork
SUBJECT: Atmospheric vehicle development of satellite three, star 1522-209
TO: Chief-Zorn Macigfee

This report is in reply to your Red Rocket message of 5739.3: "Why do so many of their atmospheric craft crash? And do they present a danger to our intergalactic travel system?" To get the required information, I surveyed the planet called Earth. I attempted contact with several Earth creatures, but was generally unsuccessful. It appears that they have a strange aversion to talking to beings with three eyes and green scales. A problem I do not understand, because their appearance is completely detestable to me. However, I was able to talk to one Doctor Watson and a transcript from my Alien Communication Pack (ACP) is included.

I originally tried to talk to a flight surgeon, but I arrived on the planet during their time block called Wednesday, and most of the doctors were off playing a game called golf—a strange pastime where humans try to hit a little white sphere into a small cylinder buried in the ground using a metal stick—but that's another story. When I finally beamed into an occupied office I noticed a sign on the desk that read "Dr. Watson, PhD, The Flying Shrink." After feeding the slang expression into my ACP, I learned that this man was an aviation psychologist. Standing behind him, I gently touched his shoulder to get his attention. (I must say the strange feeling of the alien's outer covering made my scales creep.) He was quite startled and attempted to scream, but I instantly silenced him with my phaser, which was set on stun. I then explained to Dr. Watson that he should not be frightened of me, that I meant him no harm.

TRANSCRIPT:

Dr. Watson: What do you mean, don't be afraid, it's natural to be scared of something seven feet tall, with three eyes, all on the right side of its head, and green scales. You look like a refugee from *Star Wars*.

Zork: Well, you're not so beautiful yourself. However, all I want you to do is answer a few questions.

Dr. W: Okay, okay. Then will you go away?

Z: Yes. I am only making a report. Please, relax.
Dr. W: All right, shoot. No! Don't shoot! I mean, go ahead and ask.
Z: Not to worry Doctor, my ACP understands slang. That's how I figured out you were an aviation psychologist and might tell me why so many of your atmospheric craft crash.
Dr. W: You must mean aircraft. Well, there are many reasons for aircraft crashes.
Z: Please, tell me more.
Dr. W: In the last few years, man-machine interface has proved to be the major problem. Not until after World War II did we do any serious human factors engineering. Up until then we tried to build the best engineered airframe and engines, but seemed to place a lower priority on the cockpit which was more or less stuck in for the crew after everything else was taken care of. Consequently, the airplane's design had a way of contributing to accidents.
Z: How could a machine designed by humans cause another man to have an accident?
Dr. W: For various reasons, one of them being cost, we didn't always make the crewmembers' job as easy as it could be. We sometimes designed problems for the flyer into the airplane and then tried to solve them through training programs. For instance, we used to put several switches that were all the same shape, size and color, but controlled many different systems, right together on a panel. Sometimes the pilot would flip the wrong switch and bad things would happen.
Z: It seems like that problem would be easy to solve. You could just make the switches different.
Dr. W: That's what we learned, and we do that quite often now. In fact we call it human factors engineering. We are fairly good at building machines to make the crews' jobs easier, but we haven't identified all the problems yet.
Z: What's your problem with finding the problems?
Dr. W: Believe it or not, it's the flyers themselves. Most of our folks are real mission hackers, but sometimes they try too hard. Our crews are good at what they do and proud of their skills, so they tend not to tell about the problems they run into with the system. Also there's what I call the "successful pilot syndrome."
Z: It seems like you'd want successful pilots?
Dr. W: We do. But a person can become convinced that only other people have accidents. If that individual then has a close call, he won't tell anybody for fear of destroying his "successful" image. And some folks are scared of doctors and psychologists.
Z: You may look a little weird, but not very terrifying. What's the problem?
Dr. W: Some people are afraid to talk to me or let me become involved in their projects, because they think I only deal with abnormal people. And others think that only sick people go to see a doctor. We have some trouble gathering information, also, because some folks believe the whole problem is too complex to handle.
Z: So far it seems pretty simple—just design an airplane that makes the crew's job easier. Even with your rudimentary technology you should be able to do that. What makes it so complex?
Dr. W: One of the hardest things to figure out is the decision making process and why people make mistakes in the first place. It's really baffling how a well fed, well rested, highly paid aircrew can fly an airplane around until they run out of gas because they were checking out a minor system malfunction that they could have landed with safety.
Z: That *is* hard to understand.
Dr. W: Decisions are really complicated and a lot of things can foul them up. The information we give the crew might be inaccurate, or too late or incomplete. Then again, the information might be well presented and timely, but the decision maker is too fatigued or preoccupied to make a high-quality decision. Finally, the flyers might not have enough time to decide, because we throw too much information at them too fast.

We need to give the crew just the right amount and kind of information, at the right time, and in the right order. However, they may still not make the proper decision.
Z: How is that possible? I'm getting confused.
Dr W: If our decision makers don't have the right training and experience, they won't know what to do with the good real-time information they've got. They'll have all the pieces to the puzzle, but won't be able to put it together.
Z: And how do you solve that problem?
Dr W: Through training and simulation. We can put a person in a synthetic trainer on the ground and give them realistic, but simulated, experiences where bad decisions in the air could kill

them. Which brings up another problem: A lot of times we don't know why the flyer's decision making process—judgment—was messed up because we don't get a chance to talk to them after really bad decisions. They don't survive them.

Z: Okay. I'd like to change the subject.

Dr W: Sure. If you'll take your foot out of your nose, it's very distracting.

Z: That's my ear. But I'll remove it if it makes you feel better. I want to know about football.

Dr W: My favorite spectator sport! What do you want to know?

Z: The other day I went to a game. There was a fierce animal aggression, abusive language, wild chanting, half-nude females—and that was just in the parking lot. Do such emotions ever interfere with crewmembers?

Dr W: And how! We haven't ever been able to blame a certain accident on a definite emotion such as hate or fear. However, emotions do influence our behavior. A pilot performing a complex task, like hovering a helicopter, can't do the job well if he's also thinking about personal problems. And it doesn't much matter what kind of problem it is.

Z: You confuse me again. Do you mean that something bad *or* good in an Earthling's life, can cause preoccupation?

Dr. W: Yep. The guy who's thinking about a new car or going on leave can be just as preoccupied as the person worrying about his father's heart surgery. In addition to that, the aircraft itself can cause preoccupation. A complex systems malfunction can grab the attention of the whole crew and everybody can forget about keeping track of where the airplane is going. If somebody doesn't go back to minding the store quickly, then they all could end up imbedded in a piece of real estate.

Z: It seems as though you have a pretty good idea of what causes accidents. So why haven't you stopped them?

Dr. W: Because—why are you eating my rubber plant?

Z: It's good for my scales. Now about the accidents.

Dr. W: Although I can sit here and tell you about those things that contribute to accidents, it's very hard to see them before the accident happens.

Z: What could you do?

Dr. W: Educating everybody about the problems that we've been talking about is a good approach. If people are more aware of their limitations, they may be more careful. If our flyers understand the factors affecting their decisions, they may learn to make better decisions. Also, if we could get people to tell us about the accidents that *almost* happen, then we could do something about those factors. Most accidents result from an accumulation of several small events all strung together so that they lead to an accident. If we can break that chain before the accident happens, we call it accident prevention.

Z: I think I've got enough. Thank you Doctor Watson.

FINAL REPORT:

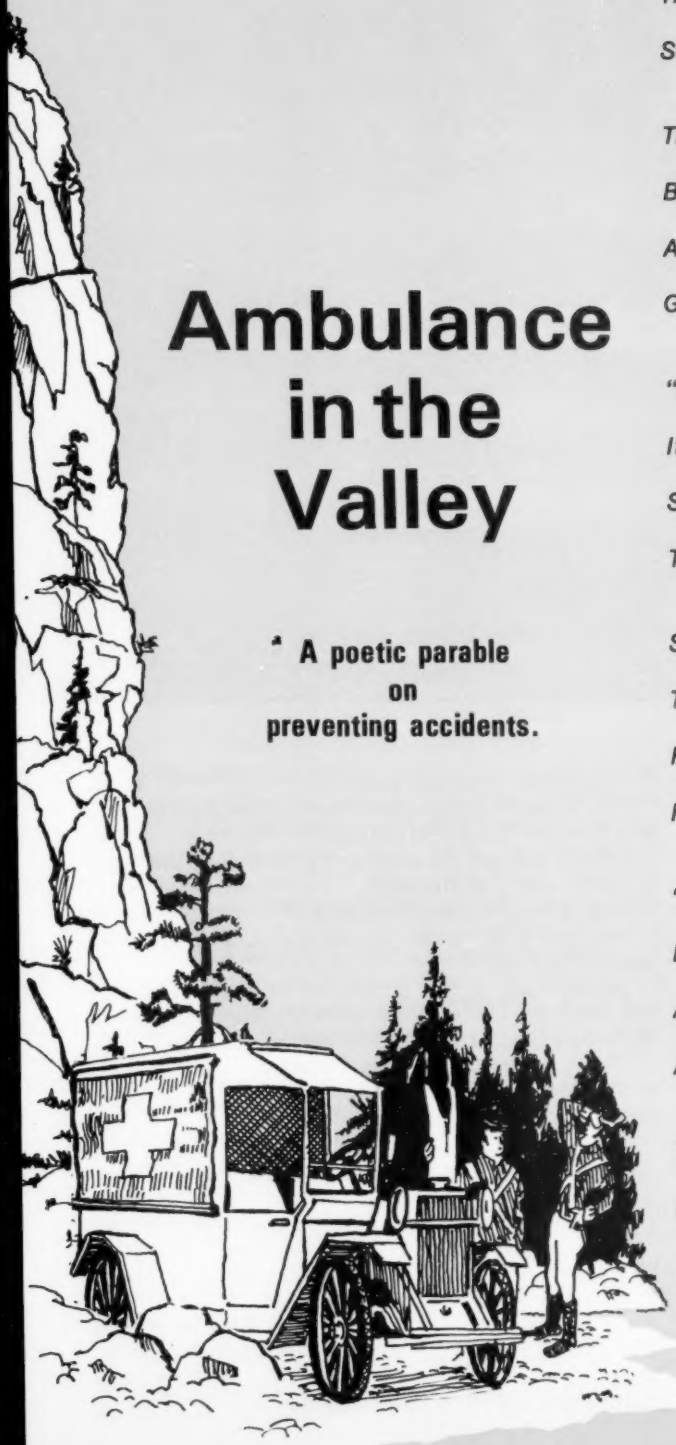
It appears that the Earthlings have achieved a limited ability to produce small, but technologically sound, atmospheric vehicles. If they can learn to handle the interface between themselves and their machines, they may be able to safely expand their influences into intergalactic travel. The information from Dr. Watson appears to be accurate. When I left his office he was scrubbing his goldfish. How could you fail to have confidence in an Earthling like that?

RECOMMENDATION: Take no further action. Observe planet three, star 1522-209, carefully for signs of extensive activity outside of the atmosphere.

Warm fuzzies,
Underzorn Zork

Ambulance in the Valley

A poetic parable on preventing accidents.



'Twas a dangerous cliff, as they freely confessed,
Though to walk near its crest was so pleasant;
But over its terrible edge there had slipped
A duke, and full many a peasant.
The people said something would have to be done,
But their projects did not at all tally.
Some said, "Put a fence 'round the edge of the cliff,"
Some, "An ambulance down in the valley."

The lament of the crowd was profound and was loud,
As their tears overflowed with their pity;
But the cry for the ambulance carried the day
As it spread through the neighboring city.
A collection was made, to accumulate aid,
And the dwellers in highway and alley
Gave shillings and pence—not to furnish a fence—
But an ambulance down in the valley.

"For the cliff is all right if you're careful," they said;
"And, if folks ever slip and are dropping,
It isn't the slipping that hurts them so much
As the shock down below when they're stopping."
So for years [we have heard], as these mishaps occurred
Quick forth would the rescuers sally,
To pick up the victims who fell from the cliff,
With the ambulance down in the valley.

Said one, to his friends, "It's a marvel to me
That you'd give so much greater attention
To repairing results than to curing the cause;
You had much better aim at prevention.
For the mischief, of course, should be stopped at its source;
Come, neighbors and friends, let us rally.
It is far better sense to rely on a fence
Than an ambulance down in the valley."

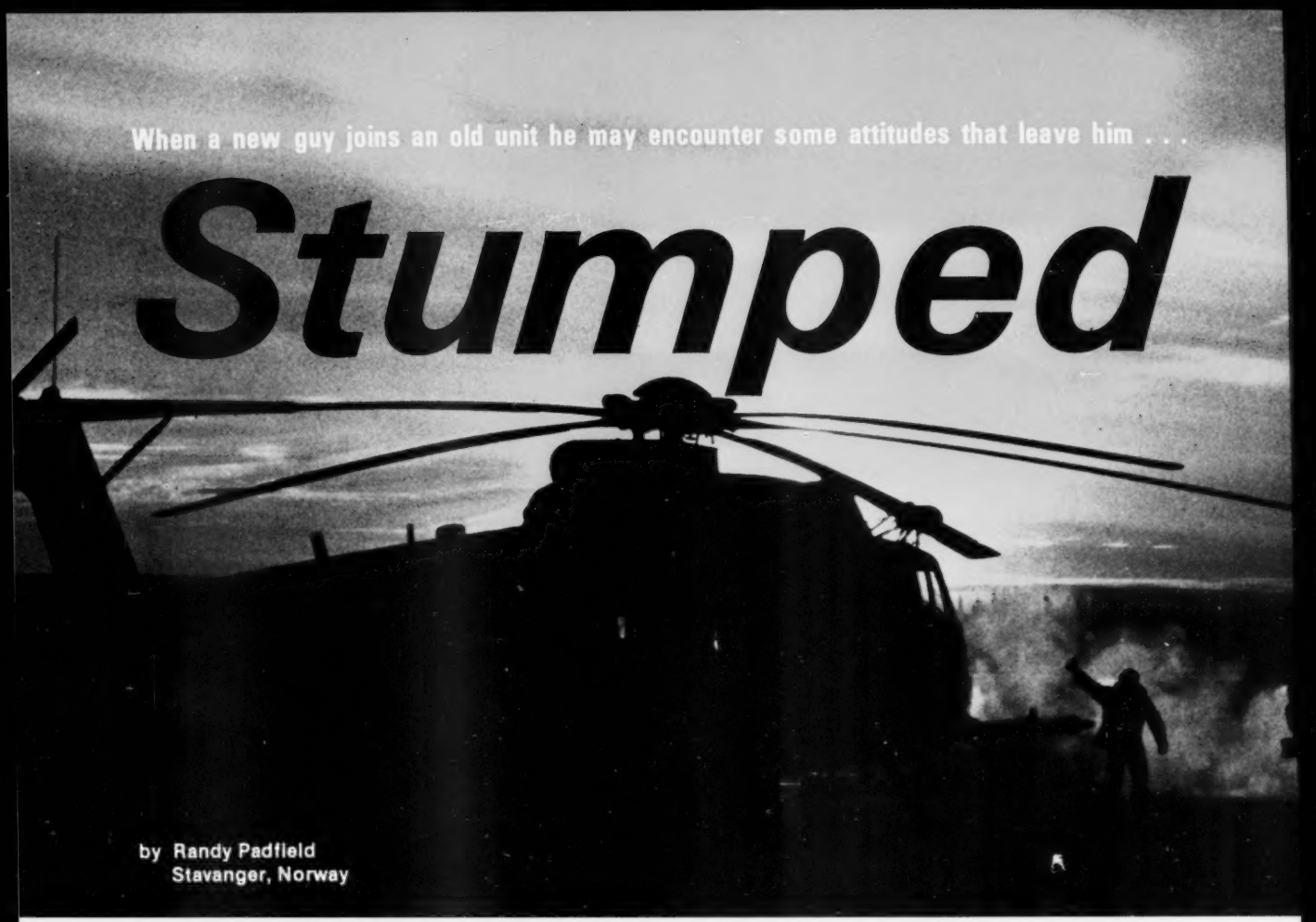
"He is wrong in his head," the majority said;
"He would end all our earnest endeavor.
He's a man who would shirk this responsible work,
But we will support it forever.
Aren't we picking up all, just as fast as they fall,
And giving them care liberally?
A superfluous fence is of no consequence,
If the ambulance works in the valley."

The story looks queer as we've written it here,
But things oft occur that are stranger.
More humane, we assert, than to succour the hurt.
Is the plan of removing the danger.
The best possible course is to safeguard the source
By attending to things rationally.
Yes, build up the fence and let us dispense
With the ambulance down in the valley.

—Aviation Safety Digest

When a new guy joins an old unit he may encounter some attitudes that leave him . . .

Stumped



by Randy Padfield
Stavanger, Norway

He paused. In spite of his nervousness, he couldn't suppress the smile when he saw the motto, "That Others May Live," painted on the door. His first real Air Force assignment. He had made it: he was a pilot and he was in Rescue. A shiver of nervous anticipation ran up his spine. But voices from behind cut short his moment of reverie. Lieutenant Jerry Bradley opened the door and suddenly remembered he had absolutely no idea how to report to a new unit . . .

Six miles off base a family had just begun a quiet Sunday dinner when the telephone rang. A tall athletic man whose short hair was speckled with grey reached behind his chair and picked up the kitchen extension on the second ring. "James residence. Major James speaking."

"Yes sir, this is Sergeant Hamilton at the Rescue Center. We have a possible mission for you."

"Yeah, okay Sergeant. What's going on?"

"It's an F-4, sir. They've declared an emergency. It's something about a hydraulics problem."

"Where are they now?"

"Their ETA for the base is about 20 minutes. We won't put you in the air unless something happens. Call us on UHF from the helicopter."

"Yeah, fine. I'm on my way."

"We're alerting Lieutenant Bradley, Sergeant Morten, and Sergeant Ross now also, sir."

"Okay, but get me another PJ. And alert the flight surgeon, too, just in case."

"Yes sir, will do. Anything else?"

"No, that's all. I'll call you on the radio as soon as I reach the aircraft."

James hung up the phone and headed straight for the bedroom. His wife was already putting his plate in the oven to keep it warm. "Anything serious, Bill?"

"No, just standby in the helicopter. Some fighter jockey has a little hydraulic problem. They'll probably land about the time I get there."

Jerry Bradley was not exactly welcomed with open arms into the 17th. In fact, he had the distinct impression that the unit's top brass were not too excited about their new copilot. The commander, Lieutenant Colonel Frank Spanning, had more than once stated his preference for experienced pilots. He considered the flying environment at Simpson AFB much too difficult for young, low-time pilots. Personnel responded by sending the detachment copilots fresh out of flight school; Bradley was the third.

Honorable Mention, 1979 MAC Flying Safety Writing Contest

As Bill James pulled into the parking lot, he noticed that maintenance had already pulled the Jolly Green out of the hanger and had the APU running. Carrying his helmet and survival gear, he hurried cautiously across the icy ramp. A burnt-orange sun cast long shadows over the snowswept airfield and glinted brilliantly from a control tower window. The hot exhaust from the APU formed a swirling halo of gold as it condensed in the frigid air. He was nearly to the aircraft when someone appeared in the cargo door, saw him coming, and scrambled down the ladder to meet him.

"Major James, the F-4's down. The crew bailed out!" SSgt Daniel Ross, the pararescue specialist, made no attempt to conceal his excitement.

"What? When did you find out?"

"Just now. Lieutenant Bradley got the word from RCC. They picked up the mayday call but haven't heard an emergency beacon yet."

James heaved his heavy survival bag into the door. MSgt Robert Morten, the flight mechanic, grabbed the bag and stowed it with the other survival equipment.

"We're all set to go, sir. Aircraft and forms look good." Morten was efficient as usual.

"Thanks, Bob," replied James. He glanced into the passenger compartment. "Where's the other PJ?"

Ross looked up from the medical kit he was inspecting, "He's on his way, Major. He had to get his gear from the storage room. Should be here any minute."

"Hmph. Well if he gets here, he gets here. I don't want to waste any time waiting."

Bradley already had the Prestart Checklist completed and was waiting for James to strap in before continuing. Well, he's learning, thought the AC. They started the engines and had just engaged the rotor when RCC came back on the radio.

"Air Force Rescue 528, RCC, we've plotted the coordinates that Zulu Mike gave us. Are you ready to copy?"

"Roger, RCC, go ahead," answered James. Bradley fumbled for a piece of paper.

"His last reported position was 23 miles out on the 278 radial from the Simpson vortac. We put that just to the east of Bartlett Peak."

"Thanks, 528 copies. We'll call you airborne."

Two minutes later the rest of the checks were complete. The second pararescueman hadn't arrived, but Major James decided not to wait for him. Tower cleared Rescue 528 for immediate takeoff from present position.

"Roger tower, thanks." James glanced back toward Morten. The flight mechanic was busily figuring takeoff and landing data. James came over the intercom, "Don't worry about it, Sarge, we can check the topping when we're airborne." Then to Bradley, "All set?" Jerry nodded. "Okay, let's go."

The 4000-hour helicopter pilot beeped the speed selectors forward, lifted the HH-3E deftly into a hover, and eased forward on the cyclic. The 11-ton flying machine nosed over, accelerated slowly, and, as it gained translational lift, passed just inches above a 10-foot snow bank alongside the runway. James held the torque at 102%, 1% below maximum power.

It had not taken Jerry Bradley long to realize what it meant to be Major William R. James' copilot. The major made it clear on their first flight that he was the aircraft commander, let there be no mistake about that! Furthermore, it was only the commander who made decisions. The crew, and particularly the copilot, were there only to serve the aircraft commander, follow his orders, carry out his decisions, and otherwise keep quiet. It was a give-and-take relationship—James giving orders, advice, instruction and criticism, and Bradley doing the taking.

"There's a smoke marker! Out the right side, two o'clock!" MSgt. Morten announced.

"I've got it now," said James, "Start your Hoist

Recovery Checklist." James banked the aircraft sharply to the right. "RCC, Rescue 528, we got one of the survivor's smokes in sight. We're going in for the pickup now."

"Rescue 528, Simpson Rescue, roger that. Give us a call when you have him aboard."

The green smoke billowed up from the upwind side of a teardrop-shaped clearing, easily big enough for three Jolly Greens. The trees around the area were tall, 100 to 150 feet. Fresh snow blanketed the whole area, softening all features. As they flew closer, the major spotted a parachute draped over a few trees about 50 yards from the clearing. Apparently, their survivor had tried to land in the open area, but had just missed. James checked the smoke again. Fifteen to twenty knots, he thought. No sweat.

"Hoist master-switch to crew position," said Morten methodically.

"Crew, " answered James, flicking the switch on the collective with his thumb.

"Intercom check. Copilot?" Morten again.

"Copilot, loud and clear," Bradley knew when to talk.

"Now listen," James glanced toward Bradley but was talking more for Morten's and Ross's benefit. "This guy went into the trees and there's a good chance he's hurt. We could try a hoist pickup but we might blow the chute around and hurt him more. He's not far from this clearing at 12 o'clock, so I'm gonna land and let Ross do his thing. If he thinks we should use the hoist, we will, but I want him to check things out first."

"Roger, Major, I'll take a radio with me, and my medical kit." The PJ couldn't have been happier.

"Good, any questions?"

"No sir!" All three replied, almost in unison.

"Sergeant Morten, clear me from the door. I'm going straight up the clearing and I'll pick a spot as we get closer to the trees on the far side. Sergeant Ross, clear out the left side." And finally to Bradley, "Gear down, prelanding check."

"Gear down. Prelanding Checklist complete," Jerry did his duties with precision.

"FM posted at the door."

"PJ posted on the left side," echoed Ross.

James reduced collective, eased back the cyclic, and settled the helicopter into a slightly shallow approach. He planned an approach to a touchdown because he knew the rotorwash would create a whiteout when they got close to the snow-covered ground. He also knew he didn't have much power to spare; he didn't know how much, but he didn't want to waste time figuring TOLD data. This survivor could be hurting bad and there was another yet to find. It would be dark soon and he didn't relish the idea of flying around Bartlett Peak in the dark.

The big Sikorsky began to shudder as it passed through 35 knots. "My spot is straight ahead, between those small bushes and that dead tree by the edge of the clearing." James picked the tree, a small one, to use as a reference during the whiteout. It was the closest possible landing site to the parachute in the trees.

"I got it," replied Morten, "clear right."

"Clear left." The PJ peered steadily out a passenger window.

Lieutenant Bradley glanced at the rotor tach and the engine instruments as James had taught him. They were in the green. He wasn't to say anything unless there was a problem. He glanced out the window, admiring the rugged beauty of the wilderness; the tall Douglas firs, their branches laden with snow, and imposing Bartlett Peak in the background. He wondered when the swirling snow would creep slowly up the rear of the aircraft and envelope them in boiling whiteness. It always fascinated him and he liked to watch it.

"Clear right."

"Clear left. Snow's coming up."

Bradley twisted in his seat to watch the snow billow around the helicopter. Just before it passed the sponson, he caught a glimpse of something protruding slightly above the snow among the scraggly bushes forward and to the left of the aircraft. He looked at it more closely. It was a tree stump. A forked tree stump that slanted back, its fork facing their direction of flight. It was partially hidden by the bushes and covered with snow but it clearly had once been a fairly large tree. It was only a few feet outside the path of the left landing gear.

Bradley's first thought was that he should warn Major James. The stump might be a problem. His right hand reached up for the mike switch on the cyclic, then stopped. James *must* have seen the stump, considered Jerry. After all, he picked this spot. And if it were a problem, Ross or Morten would have said something. They can tell better than me, better keep my mouth shut. I've been doing okay so far on this flight. James hasn't corrected me yet. And the last thing he likes is for me to touch the cyclic when he's on short final, and especially not to talk to him. If I said something now, he'd just get torqued off at me. Bradley brought his attention inside the cockpit again and scanned the engine instruments. When he glanced back outside,

the snow had totally obscured his view and the stump had disappeared.

At that moment, Major James was sliding the aircraft left in order to maintain clearance from the dead tree on his right.

The abrupt nose down pitch was the first indication that this was not going to be a normal landing. The next few seconds were, for Bradley, such a confusing blur of sights, sounds, and sensations that it wasn't until after he had crawled out of the wreckage that he realized what had happened. James, too, had no idea what had happened. Already pulling maximum power, immersed in a total whiteout, and apparently no more than a few feet from the ground, he had reacted instinctively and put the aircraft solidly on the deck. Without hesitation, he dropped the collective. At the same time, however, he also corrected for the nose down pitch attitude with back cyclic. The main rotor blades responded to this massive control input by flapping down and back with such force that impact with the tail boom was inevitable. From that point, the aircraft was totally uncontrollable. The force of the rotor blades striking the tail while the left gear remained entangled in the tree stump caused the helicopter to pivot counterclockwise. The remaining forward momentum and the twisting action was too much for the left gear. It sheared shortly before the right gear collapsed under the total weight of the aircraft. To his credit, James kept his senses. As the helicopter settled on its right side in a cloud of snow, he closed the speed selectors, pulled the emergency T-handles, shut off the fuel valves, and switched off the battery. This, and a bit of luck, prevented a post-crash fire.

James had to push Bradley through the copilot's window. Ross helped Morten, whose arm was broken, climb out of the forward emergency exit window. Amazingly, the flight mechanic was the only one injured.

They stood together outside the crumpled machine. It looked every bit like a giant dead bug. The left gear, solidly in the possession of the telltale tree stump, left no doubt as to what had happened. James couldn't accept the idea, however, of a tree stump demolishing his helicopter. He couldn't believe his rescue mission had ended in disaster. "How could we have missed spotting that stump?" James muttered aloud, not really expecting an answer.

After a long moment of silence, Bradley slowly turned to face his aircraft commander. "I saw it, sir."

"What?" The major's face was a picture of surprise and disbelief. "How could you?" *When* did you see it?"

"On short final. Just before the snow came up."

James pointed to the stump and shouted, "You saw that before we hit, and you didn't say anything?" He grabbed his copilot by the shoulders.

"I, ah, thought you saw it. I thought it wouldn't be a problem." James' quickly rising anger was making Bradley nervous. He had never seen the major so distraught before. Maybe he shouldn't have said anything. "I didn't want to bother you on short final, sir." It was his last excuse.

"You didn't want to *bother* me!" yelled James. "What the hell's the matter with you? Haven't you ever heard of crew coordination?"

Ross stood up from splinting Morten's arm; he was afraid that James might really lay into the lieutenant.

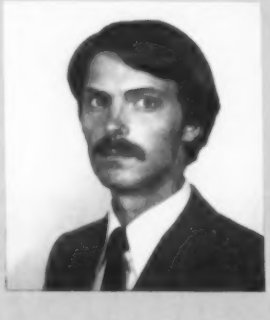
Bradley swallowed once. His throat was dry. He could barely think. He was cold, confused, and scared. Scared of this madman who was shaking him and yelling at him as if he had committed some terrible crime. What could he say?

James shook his copilot hard. "Answer me! Answer me, lieutenant! Why didn't you say anything? Why didn't you tell me about the stump? Why?"

Bradley looked fearfully into his AC's face, a face contorted and red with anger. What had he done to bring this on? What was wrong? Suddenly, like a flash, it came to him. He understood everything: the stump, the accident, the anger, the questions—everything. Calm came over him, courage welled up inside and he looked his aircraft commander straight in the eye. Then, with a voice that reflected both understanding and pity, he gave Major William R. James an answer that the AC was never to forget. "Yes sir, I've heard of crew coordination and, yes sir, I do know what it is. But the important question now, sir, is . . . do you?"

ABOUT THE AUTHOR

Mr. Padfield is a 1971 graduate of the USAF Academy and holds a master's degree from UCLA. His Air Force career included flying the HH-3E at Keflavick, Iceland, and Elmendorf AFB, Alaska. After leaving the military in 1977, Randy went to work for Helikopter Service AS, Stavanger, Norway, flying Sikorsky S-61Ns. He recently upgraded to captain.



The Airlift Legacy

C-60 Lockheed Loadstar

Lockheed's Model 10, Electra, a very successful commercial airliner of the 1930s, was the progenitor of an entire series of airplanes that shared its same basic airframe. Model 18 of the series was named the Lodestar and was unveiled early in 1940. Powered by two Wright Cyclone engines, it was one of the fastest airplanes of its class. Its superior performance drew the attention of Army aviation planners and in 1941 several copies of the airplane were ordered under the

designation C-56.

The next year, with war production moving into high gear, 325 of the twin-engine transports (this time named the C-60) were delivered to the Army Air Force. This most abundantly produced version of the Lodestar was fitted with two big 1,200 hp Wright R-1820 engines, which could propel the ship along at over 250 mph. It was used extensively as a light transport throughout the war and afterward. With a maximum weight of around 18,000 pounds, it had room for 17 passenger seats (one commercial version impressed into the Air Force had 22 seats). Although less than 50 feet in length, its wing span was a healthy 65½ feet. Pilots who flew the C-60 were pleased with both its flight stability and power. It could climb to 10,000 feet in just over seven minutes and had a range of 1,600 miles.

Rocky Mountain Low

Freezing rain was starting to fall on the Rocky Mountain airport as the sun dropped behind the snow-covered peaks. In the terminal building, 20 passengers impatiently awaited the arrival of the aircraft that would take them to Denver. Running well behind schedule due to strong headwinds on its westward flight, the Twin Otter touched down on the 3,300-foot runway at 1820 mountain time. Along with the strong west wind, the captain reported heavy icing between 15,000 and 10,000 feet during the descent.

The airline's station crew pumped 4,700 pounds of jet fuel aboard the de Havilland DHC-6, and flight 217 was on its way to Denver by 1855. The first officer made the takeoff on runway 13 and immediately turned the STOL transport to the southwest, following a teardrop departure that brought them over the Steamboat Springs NDB at 12,000 feet. As flight 217 intercepted the victor airway eastbound toward Kratr intersection, they entered clouds and the de Havilland began picking up ice. At 13,000 feet the twin turboprops would pull the transport no higher using normal climb power. Deicing equipment was removing heavy ice from the props, engines, wings, empennage and windscreen, but ice was also starting to accumulate on the airframe. The copilot later reported that it looked like they were flying through slush.

The captain took control of the Twin Otter. He pushed the power levers up to maximum climb power, lowered five and then ten degrees of flaps, but the aircraft still would not climb. The left-seater knew they had to climb to the 16,000-foot MEA in the next few miles to navigate the airway safely. With the distance to Kratr decreasing quicker than their altitude was increasing, the AC decided to turn back to the departure airport. Not yet in radar contact with Denver Center, flight 217 reported, "We're having a little trouble maintaining altitude and we're going to have to return."

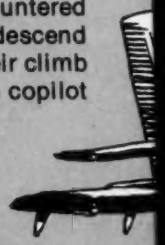
The center controller obliged with a clearance to fly direct to the NDB and "cruise 17,000." A few seconds later the controller asked, "What's your altitude now?"

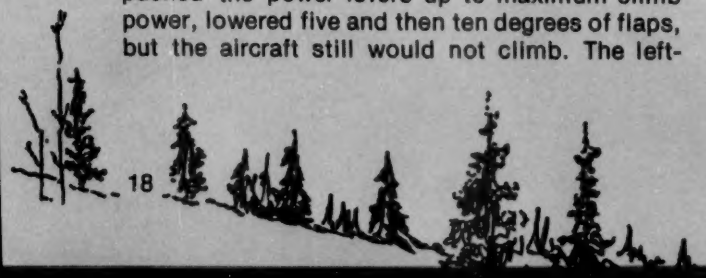
"Thirteen-thousand," was the reply.

"Roger, change to advisory frequency, report your cancellation or arrival time," came the controller's instructions to flight 217.

Even with max power and 10 degrees of flaps the DHC-6 began to descend slowly. The captain managed to arrest the descent at 11,600 feet, the minimum safe altitude to be maintained until over the Steamboat Springs NDB according to the airline's approach chart. The left-seater remarked (somewhat prematurely) that they "had it made."

A few miles further on, the flight encountered another area of severe icing and began to descend at 800 to 1,000 feet per minute despite their climb attitude and power setting. Suddenly the copilot





saw the ground, pushed the power levers full forward, selected full flaps and told the captain to turn to the right. The Twin Otter's right wing struck a high-voltage electrical-transmission-line tower, tearing off about 10 feet of wing and sending the airplane plunging onto the mountain slope below. The fuselage came to rest on its right side near the base of another transmission tower at an elevation of 10,530 feet.

Although all 22 people aboard initially survived the crash, the captain and one passenger died later from serious injuries. The good fortune that the cabin lights stayed on for several hours and that one of the passengers was a winter-weather survival instructor saved many of the seriously injured. People with only minor impairment were able to get into the baggage compartment and distribute warm clothing and administer first aid. (The NTSB noted that both the captain and first officer would have been less severely traumatized if shoulder harnesses had been installed and used in the Twin Otter's cockpit.) Fourteen hours after the crash, a rescue party began evacuating the survivors.

In this accident the captain's evaluation of the weather was critical. He was well aware of the heavy icing they had encountered on their flight into Steamboat Springs; he also knew about his company's rules against operating in known or forecast heavy icing conditions. However, he did not have enough information about a second meteorological phenomenon that ultimately kept the Twin Otter from climbing safely out of the valley: mountain waves.

Large air masses centered over southeastern Wyoming and northwestern Arizona met over the Colorado Rockies on the day of the crash causing strong winds from the northwest and a temperature inversion starting at about 7,500 feet. Just east of Steamboat Springs is a north-south ridgeline with an elevation of about 12,000 feet (nearly 6,000 feet above field elevation). Conditions were ideal for a strong mountain wave to form east of the ridge, but there were no obvious indications at the airport a few miles to the west. Additionally, the weather information available to the crew did not specifically warn of mountain waves, but did predict "frequent moderate to occasionally severe turbulence . . . with strong up and downdrafts along the eastern slope" of the Colorado Rockies.

The high winds aloft generated a mountain wave, but the inversion layer kept it from affecting the airport. Above the inversion layer the westerly winds were about 80 to 90 knots at the ridgeline altitude. The existence and intensity of the phenomenon was masked by the smooth air below the inversion layer. Airport winds were light and variable. Thus the crew was deprived of the most obvious keys to possible mountain-wave activity in their immediate area—high surface winds blowing perpendicular to the ridgelines and turbulence. After analyzing the lay of the land and the weather, the NTSB decided that downdrafts east of the ridgeline were moving at 500 fpm or more. Coupled with heavy icing, the mountain wave literally pushed the Twin Otter—even with its engines set at max power—onto the ground.

Many factors entered into the captain's decision to take off for Denver that evening. He obviously decided that the de Havilland could successfully climb through the icing conditions. Although he wasn't specifically pressured by the company's dispatcher, he knew that the 20 passengers were depending on him to get them to Denver to make travel connections and business appointments that they were already late for. Also, he was aware that the aircraft would be needed to fly scheduled missions the next day. His judgment about the safety of the operation prevailed and he took his aircraft to the limit of its abilities. When one more unaccounted-for adversity appeared—the mountain wave—the fate of flight 217 was sealed. Given all the circumstances surrounding this tragic incident, the importance of sound judgment in making the decision to fly becomes clear. The captain's determination to press on into heavy icing conditions in violation of company directives resulted in the aircraft crash, the death of one passenger and injuries to 20 more, and cost him his own life as well.

The true story of a crewmember chosen by fate to demonstrate his knowledge in a critical emergency.

This Is No Drill

It was, as they say, a routine training mission. I was navigating a tactical low-level airdrop in my trusty Hercules.

"Twenty-minute warning checklist complete, copilot."

"Nav."

"Engineer."

"Loadmaster."—just like clockwork.

Now and then we hit some light turbulence, but nothing to be concerned about. The ten-minute warning came—"Copilot."

"Nav."

"Engineer . . ."

This time there was no response from the loadmaster in the back. Again the query was given and again, no answer. The pilot sent the engineer aft to check. Probably a bad mike cord, he thought. The day's flight ceased to be routine when the excited voice of the engineer came back, "He's unconscious! Looks like he hit his head and he's out!"

Immediately the pilot swung the C-130 out of the low-level route on a heading back to Cheyenne, declared an emergency, and requested an ambulance meet us when we landed. I called back to the engineer to see if he needed any assistance. After hearing a, "that's affirm," I cleared off headset and headed toward the rear where he was loosening the parachute harness from around the inanimate loadmaster. He had apparently fallen, and even though his helmet was still on, there was a big bruise on his chin and a trickle of blood on his lips.

We would get medical attention soon, but for now . . . let's see, treat for shock. His flight jacket was on and zipped and he was already lying on his back. Good so far—how about some oxygen? I asked the engineer to bring over a walkaround bottle, turned it to "continuous" and held it just below his nose. That way I could monitor his breathing. It was getting faster, heavier, and ragged.What was happening? His breathing rate reached a frantic peak then, with a heave, suddenly stopped completely.

His face was ashen white. I tried to feel for a pulse but the vibration of the plane made it impossible. Mouth to mouth. I tilted his head back, checked his mouth for obstructions, moved his tongue, and started. No response.

I repeated the procedure. After what seemed like an hour—probably only two minutes—he started breathing on his own, shallowly at first, then stronger. I didn't know about him but it sure was a thrill for me. The gear and flaps came down and we finally landed. We were met by the ambulance and the loadmaster was rushed to the hospital. I felt like I had just played in the Super Bowl and won.

Later, as I reflected back on the incident, it occurred to me that first aid, for some reason, had always been one of those subjects to which I paid attention during training sessions. Perhaps next time fate would not be so kind as to play a game with which I was familiar and trained. But I was thankful I had retained some of the knowledge the Air Force had offered to me over the years, because this time it had been more than just a drill.

by Capt Alan J. Ose
187 TAS (ANG)
Cheyenne, Wyoming

Whoa Without Woe

Some fast facts about getting stopped with your rollers intact.

This article is adapted from Boeing Airliner, *June 1979. Although it is directed toward users of Boeing airplanes, it is a tightly packaged lesson in the proper use and care of brakes on transport aircraft that should be useful to MAC crews.—Ed.*

A 747 makes a normal landing following a routine flight. After taxiing two miles to the ramp, it is parked for an hour and a half, and prepared for the next flight. The airplane is then taxied several more miles to the active runway and starts its takeoff roll. At about 110 knots, the pilot rejects the takeoff and the airplane is taxied clear of the runway. After checking the problem that caused the abort, and deciding to continue the flight, the crew determines from the brake cooling chart that the brake energy from the reject is below the "caution" range and it's safe for another try. Following a long taxi back, they start a second takeoff roll. Just after refusal speed is reached, a tire fails throwing pieces of tread into the airplane and causing considerable damage. More metal is mangled during the subsequent landing.

Unfortunately this account is not fiction. Although it covers an unusual sequence of circumstances, it did happen, and there have been a number of similar incidents. Remarkably, most of them are avoidable.

Cause

The underlying cause of these incidents is a lack of awareness of essential factors concerning airplane brakes and tires. A quick review of "wheel physics" reveals several important facts. The kinetic energy which is absorbed in stopping an airplane is converted through friction into heat energy. The brakes then dissipate this heat energy very slowly into the wheels, tires and atmosphere. Depending on many variables, an hour of cooling on the ground may reduce the temperature by only one-half or less.

A typical taxi and flight sequence can progressively increase the brake temperatures. Anytime the brakes are forced to absorb more and more energy the temperature may get high enough to melt the protective fuse plugs, resulting in tire deflation. Depending on the energy absorbed, the tire may deflate at a time ranging from minutes to almost an hour after the brakes heat up.

If you have several tires on each landing gear, deflation of a single casing may not be readily detectable from the cockpit. Running on a deflated tire will have no adverse results, provided it doesn't come apart and the other wheel on that axle holds up. However, deflating one tire on an axle makes the other carry twice the load, which may cause it to fail. Of course, failed tires create

other problems, like slinging pieces of rubber against the airplane and serious directional control difficulties on smaller aircraft.

In the 747 incident, the brakes were still hot, although within limits, at the time of the runway abort. The rejected takeoff (RTO) energy absorption was enough of an overload to finally deflate one of the tires. It probably went flat during taxi back for takeoff and wasn't recognized from the cockpit. On the roll, the disintegrating tread and casing caused the airplane damage.

Landings and rejected takeoffs put the greatest strain on brakes and tires. Aborted takeoffs at high gross weights and high speeds, which fortunately are rare, place extreme demands on the brakes. This is due to several factors: the ground speed may be as high, or higher, than landing speed at the time the RTO is started; the airplane has less aerodynamic drag because it's configured to fly, not stop; the RTO is started while the engines are producing maximum thrust instead of near idle power; and the stopping distance available may be considerably less than during landing.

Another significant source of heat energy for the brakes which is often overlooked is taxiing. Depending on the engine thrust and airplane weight [and the use of reverse thrust], it is often necessary to use brakes to keep the airplane from taxiing too fast. In addition, taxiing at busy airports may be a stop-and-go operation reminiscent of rush hour driving.

It's essential to understand how heat builds up in brakes, wheels and tires. Consider this flight sequence: a landing by itself requires that a moderate amount of energy be absorbed. When the landing is followed by taxiing, more heat is added to the already hot brakes. Parking the airplane for a normal [ops stop] turnaround does not fully cool the brakes, since the heat is dissipated quite slowly then. Taxiing out for the subsequent takeoff adds still more degrees. In the event of a RTO, the brake-wheel temperatures may finally get high enough to melt the fuse plugs.

Brake Cooling

Leaving the landing gear extended in flight is by far the most efficient cooling method. It's especially useful on training flights which require stop-and-go landings or full-stop-taxi-back operations. Some airlines use inflight cooling after takeoff following a short turnaround, especially when the upcoming flight segment is brief.

Brake cooling when the airplane is parked is only fractionally as effective as inflight temperature reduction. Several hours may be needed to reduce the brakes to ambient temperatures after a typical landing. Some airlines have adopted the practice of directing large fans at the wheels and brakes to speed cooling on parked aircraft.

The slowest cooling of all takes place with the landing gear retracted in flight. This is less than one-third as effective as on-the-ground methods.

Prevention

There are several proven procedures and techniques for keeping aircraft brake temperatures down and preventing accidents like the one described at the start of this article. [Note: Be sure and first check your appropriate aircraft Dash One.]:

- Use good pilot technique during landings and taxiing to minimize the energy the brakes must absorb. Prompt deployment of speed brakes and/or spoilers, proper use of reverse thrust, and judicious application of the binders are very important. Careful control of the touchdown speed and touchdown point are also essential.
- Any landing at high gross weight or any rejected takeoff are causes for staying on the ground long enough to insure that the tires won't deflate. [Check tech data for cooling time.]
- Use of in-flight, gear-down brake cooling can reduce residual heat very rapidly and is recommended for short-haul operations where cumulative heat energy can be a serious problem. It is equally important on training flights where repeated landings can generate high temperatures. This cooling can be accomplished either by delayed gear retraction after takeoff, performance permitting, or by early extension on approach.

Understanding the fundamental facts concerning brakes and energy absorption and dissipation, along with good crew techniques, can go a long way toward preventing tire failure mishaps.

Deja Vu*

Nellis AFB
Nevada (Elevation 1,868 feet)

Located in the Las Vegas Valley, Nellis AFB is the home of the USAF Tactical Fighter Weapons Center, two fighter wings, the Thunderbirds and the 4440th Tactical Fighter Training Group (Red Flag). The two fighter wings operate about 180 high-performance aircraft at Nellis, making it a very busy airport. During a Red Flag exercise recovery, the tower may handle 60 aircraft in 15 minutes.

Nellis has two 10,000-foot parallel runways, 21/03 left and right. Because of airspace restrictions, arrivals and departures normally use runway 21. The Sunrise and Frenchman Mountains are less than four miles to the southeast, and traffic patterns are usually flown to the west of the field.

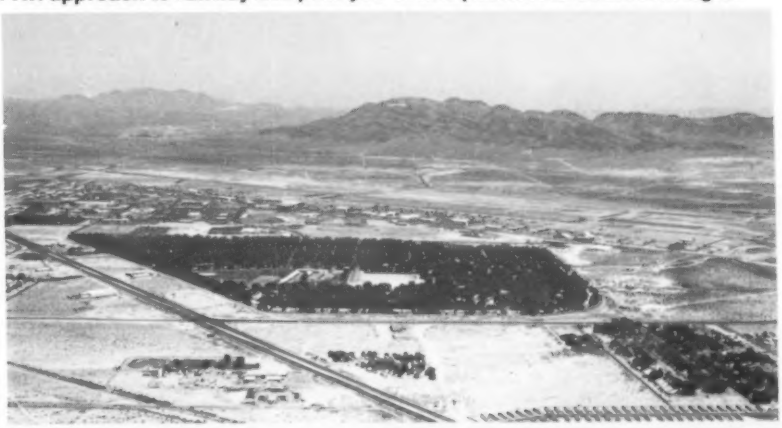
Approach control to Nellis is provided by the FAA; the base is in the Las Vegas TCA. McCarran International, ten miles south of Nellis, is constantly busy, and restricts the use of runway 03. North Las Vegas Air Terminal, seven miles to the west, generates over 200,000 air traffic operations per year, mostly small civil aircraft. Additionally, aircraft must not fly over the Lake Mead Base, "Area II," located slightly to the east of the extended centerline of runway 03.

With unlimited visibility, breathtaking landscape, and combat exercises, Nellis offers MAC flyers some of the most interesting flying in the world. However, these same factors, coupled with heavy air traffic make Nellis a definite "heads-up" operating area.

by 2d Lt Ben Rich
2069 Comm Sqdn
Nellis AFB, Nevada

Runways 03 Left and Right seen from one-mile initial. The ramp and main base are to the left.

PAR approach to runway 21L puts you in this position at decision height.



Looking toward the airfield from the downwind leg highlights the Sunrise Mountains, which are less than three miles east of the field boundry.

Our Wandering Wall Streeter invests too much attention on the market and nearly buys the farm.

C.R. ERROR

Here's a good one for you, Sammy m'lad," C.R. challenged, as he pushed the Starlifter's throttles forward and accelerated the empty airlifter quickly toward takeoff speed. "What do flying and the stock market have in common?"

"Don't know, Boss," answered his long suffering copilot, adding, "We're coming up on go speed."

"The answer is: Heh, heh, they both have their ups and downs!" guffawed the Facetious Funster as he eased the big jet into the air. "In fact, this aerospace vehicle is so light, it climbs just like a bull market—watch!" The Silver-Winged Sage of Securities yanked back on the yoke, nearly standing the C-141 on its tail and eliciting an audible groan from Sergeant Torque, the straight-and-level-loving engineer.

"Bull market—that's a knee slapper," continued the Heavy-Lift Huckster. "Yes, I've given the matter considerable thought

of late and I find innumerable parallels between the two fields of endeavor."

In the right seat, Long Suffering Sam tried in vain to copy departure control's climb instructions which were being effectively obstructed by the interphone chatter from the Garrulous Gamester across the console. "Sorry departure," Sam apologized, "your last transmission was blocked. Say again altitude and radial, please."

Meanwhile, C.R. hadn't stopped talking long enough to hear the departure instructions. "Hey Sam, what was that radial again?"

"Two-four-zero, Boss, we just passed it," warned his overtasked teammate.

"No sweat," chortled the Ace of Aerospace, racking the sturdy airlifter into a high-G turn to reintercept the assigned course. "That's why these airways are so wide—gives you plenty of airspace on either side for just such maneuverings," C.R. explained, while the compressed engineer gave out another groan, this time sounding more like a growl. "But seriously, Sam, in this day and age, with inflation and financial uncertainty, we've got to plan ahead. Ever dabble in the market, m'boy?"

"I put a little each month into a carefully managed mutual fund that's done pretty well over the years. Coming up on our altitude, sir," Sam reminded.

"Mutual funds are okay, I guess, but they're so boring," exclaimed the Manipulator of Money and Machines, as they shot through the assigned altitude.

"Two-hundred above," prompted the competent copilot.

"Oh yeh, so it is." The Hazy-Headed Honcho pushed the yoke over with such force that Long Suffering Sam was lifted above his seat and dangled there entangled in his lap belt and shoulder harness.

"Come on down from there, Sam, and run the cruise checklist, heh, heh. You look like an undernourished scarecrow in a sou-easter," observed the Pudgy Prankster.

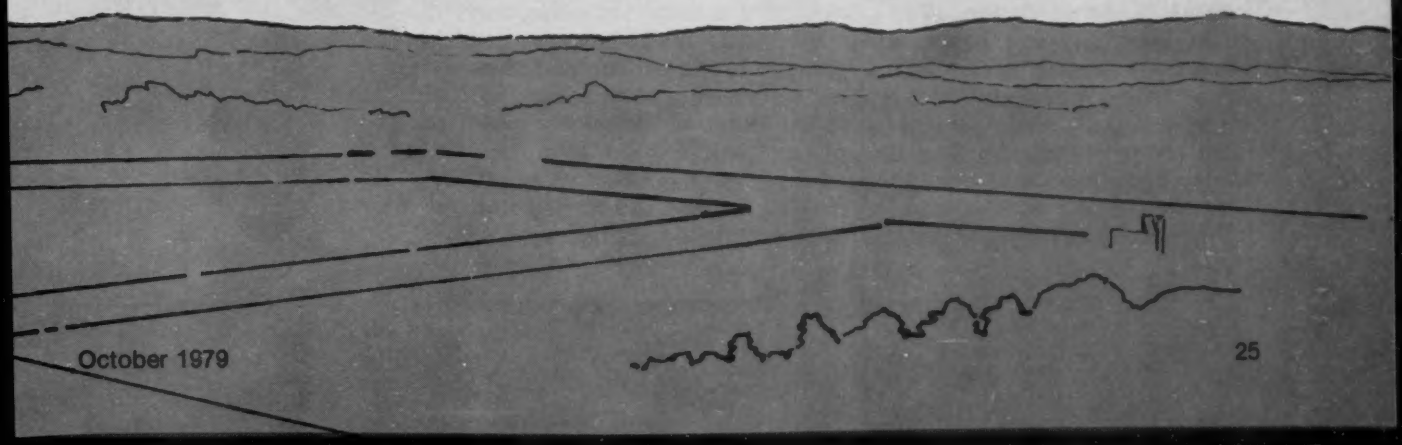
Before the checklist was complete, C.R. relinquished control of the airplane to the trusty autopilot. He then dug a copy of the *Wall Street Journal* out of his flight bag, opened it with a flourish and began lecturing his captive audience on the subject of planning ahead, "investment-wise," as he described it, using an endless number of comparisons to illustrate the similarities between the worlds of flight and high finance. "Yes, careful planning and aggressive execution of the right decisions are the keys to success in both fields of endeavor," he rambled on. "Why only the other day, I was telling Maggie that, had I not opted for the wild blue yonder, I would have undoubtedly become a mogul of the market."

"Who's Maggie?" queried Sam, knowing full well the J.P. Morgan of MAC was about to tell him anyway.

"Ah, glad you asked. Miss Maggie Margin is the most pulchritudinous purveyor of portfolios at the ACME Investment Company. I was there a few weeks ago unloading. . .er, liquidating some volatile issues. I knew instantly that I had seen her somewhere before, but I couldn't place the face because of the glasses and hairdo. When I got closer, though, I realized I had caught her act at the Pink Puma lounge. Seems she was working her way through business school then—today she's a certified seller of stocks."

"Oh, now I get it," observed Sam. "I couldn't understand this sudden interest in the stock market because up till now, the only investment I ever heard you talk about was that idea for a tavern in Torrance that fell through."

"And I still say that converting that old drive-in theater into a



drive-in-tavern is a winner. Practically no overhead at all. But alas, it was just one of my many mental offspring who are too far ahead of their time. Ah, here it is," C.R. exclaimed, folding the financial rag to the over-the-counter stocks. "International Mooring Masts, Inc. Now here's an opportunity for you, Sammy, a chance to get in on the ground floor in a company that's sure to balloon."

"What kind of company is that?" asked the incredulous co-pilot. "I thought mooring masts were used for blimps way back when."

"Exactly, my perceptive friend," C.R. allowed. "And with the price of jet fuel getting so high, I figure it's just a matter of time before zeppelins come back—when they do, this company will have a corner on the mooring mast market—can't launch or recover a dirigible without them."

"Did Miss Margin recommend this company?" asked Sam.

"No, I discovered this beauty myself," confided the Wall Street Wonder. "But I'm sure she'll be interested in it. She's always telling me how much she enjoys hearing about my investment ideas. In fact, we have a rendezvous this very evening after she gets off work—that is, if I can squeeze enough mach out of this four-engine freighter to make it back in time." C.R. pushed the throttles up a bit, and L.A. Center cleared them to descend to 5,000 feet at pilot's discretion.

Taking advantage of a lull in C.R.'s discourse, Sam decided to relieve himself, at least momentarily, of the prattlings of the Prelate of Pilotdom. "Mind if I go to the back before we start down, sir?"

"Only if you bring me a cup of your finest mocha java," C.R. bargained.

"Deal. Be back in a jiffy," Sam said as he excused himself.

"No rush, m'lad, we don't need to start down for another 7.3 minutes." C.R. continued to read the paper and Sergeant Torque busied himself computing landing data. Suddenly, the airplane rolled violently to the left and pitched down. Pages of newspaper flew in all directions and C.R. exploded in a paroxysm of uncoordinated movement. Sergeant Torque screeched as the blue sky disappeared from view and terra firma filled the windscreen.

By the time C.R. grabbed hold of the controls and disconnected the autopilot, the Starlifter was approaching 80 degrees of bank and diving. Trying desperately to remember the correct unusual attitude recovery procedures, the Flabbergasted Flyboy mumbled aloud, "Let's see, for nose low, add bank, pull through to the horizon and then level the wings," whereupon, he rolled in more left aileron and pulled back on the yoke, increasing the bank angle slightly over 90 degrees and forcing the airplane into a modified split-S from FL 270.

Sam was about to climb back onto the flight deck when the C-141's wild gyrations forced him to jettison the cup of coffee he was fetching and hang on to the ladder for dear life.

C.R. managed to retard the throttles to idle, which probably kept the airplane from going supersonic. As the big transport finally pulled out of the dizzying dive, he noticed with mixed emotions that the altimeter read exactly 5,000 feet. Regaining some composure, C.R. keyed the mike, "Roger, Los Angeles, we're level at 5,000."

Sam finally scrambled up the ladder and onto the flight deck. "What happened?" he asked anxiously.

"Not real sure, Sammy, ol'boy. First thing I knew we were on our side and heading for the farm. You've got the airplane, Sam, and the approach and landing too, offered the Stunned Stunt Pilot, adding, "I know one thing—flying is even more like the market than I realized."

"What do you mean, Boss?" asked Sam.

"Well," C.R. concluded shakily, "not only are there ups and downs, but sometimes it can be a real bear."

Quick Stoppers

Wake Turbulence I.Q. Quiz

Here's a multiple-choice brain teaser for you: When does a departing aircraft start producing vortices?

a. At the start of takeoff roll
b. At approximately 60 knots
c. At lift-off
d. When the nose is first rotated

Before you blurt out an answer, here is some semi-technical info from Lockheed for you to program in your cranial computer banks: Theoretically, a tip vortex must exist as soon as the airplane starts down the runway during its takeoff roll. The strength of the tip vortex during the ground roll will depend on the ground roll lift coefficient and airspeed. Higher flap settings and airspeeds will cause stronger vortices. The strength of the tip vortices during ground roll will be small in comparison with the fully developed vortices that will occur at lift-off. In summary, the absolute correct answer to this question should be: (a) at the start of takeoff roll. If, however, one were to qualify the question to "significant tip vortices", the answer would be (d) when the nose is first rotated and (c) at lift-off, when the fully developed tip vortices that could upset a following lighter airplane occur. Still confused? All things considered, the experts say that choice (c) is the best answer to keep in mind when you're pacing yourself to keep from getting tossed about or possibly upended after a "big guy" takes off ahead of you.

—Adapted from *The Cockpit*

Grease Job

A Huey IP demonstrating a low-altitude autorotation had entered the descent when he noticed the antitorque pedals sticking each time he pushed the right one. He could, however, use left pedal and, with each use, regained a little more right pedal travel and antitorque control. Due to airspeed and low altitude, the instructor continued the autorotation to a smooth landing.

On the ground, a crushed tube of grease was found below the pilot's adjusting bell crank assembly. During entry into autorotation, the tube had wedged in the bell crank assembly, limiting right pedal travel. As pressure was applied to the left pedal, the tube was crushed until the spent container dropped out of the control mechanism and the IP regained control of the antitorque pedals. Although crushable foreign objects in the cockpit can apparently be overcome, a grease job landing might not have resulted if a more solid object, like a wrench, had become entangled in the flight controls.

—Adapted from *Flightfax*

Quick Stoppers

FLIPed ABCs

Once upon a time, a student pilot spent most of a day searching through approach charts for "Dickey Goober" AFB under the Ds and Gs. He eventually learned that the base is really Richards-Gebaur and it's neatly indexed in Volume Five between Renner Field and Rolla National.

Not long after, I found myself dodging thunderstorms in a T-38 over Georgia. I urgently needed to divert into anywhere with a long enough runway, and Atlanta International became a prime candidate. Checking the IFR Sup under Atlanta International I read, "SEE THE WILLIAM B. HARTSFIELD ATLANTA INTERNATIONAL." So I tried in the Hs for "Hartsfield" and then looked up the "William's"—no luck. In desperation I tried "International" and even "B." After 20 minutes on the ground, searching at Dobbins AFB operations, I found it listed under *"THE."*

Having learned my lesson, I began checking approach books for my destination and alternates before leaving base ops and discovered other interesting quirks in the FLIP system. The Defense Mapping Agency apparently has their own version of the alphabet. In the High Southwest approach book I found Randolph AFB followed by Reno International and then Reese AFB . . . strange. I'm sure this error has now been corrected, but it further illustrates the necessity for checking the pubs before you go fly.

—Adapted form ATC *Approach to Safety*

(We don't know if it's going to straighten out the problems mentioned above, but two new versions of the U.S. low altitude approach books are coming out soon. A five-volume set will be available mostly for fast movers and other folks who need at least 5,000 feet of runway and don't shoot NDB approaches. Also a 12-volume set will be published for those who need to have all the approaches for everywhere.— *Ed.*)

Cart Wheeled Sailor

Operating restrictions forced a Galaxy crew to select the southwest runway for departure from a Naval Air Station. After engine start, the C-5 was cleared down the runway for a 180-degree turn and subsequent takeoff. Approaching the runway end, the pilots surveyed the situation from their lofty vantage point and decided that a right turn would be the safest because of several airplanes parked in the runup pad to their right. The AC smoothly taxied the C-5 into a sweeping right turn, lined up on the center stripe, and stopped the big airlifter. Completing the checklists, the pilot advanced the throttles for a reduced-EPR takeoff and the Galaxy departed.

Unknown to the aircrew, their 50-mph jet blast on takeoff caught a Navy wheels-watch cart, pushing it out of its chocks and down an embankment with the "wheels watcher" still aboard. Fortunately, the jet blast victim received only minor bruises during his unplaned plunge.

This mishap further emphasizes the need for both aircrews and ground crews to respect the power of the little hurricanes set up by jumbo jets when they take off.

FOD for Thought

As a 707 taxied out for takeoff, the truck-unlevel light blinked on and off. The flight returned to the gate and on inspection the number one rear tire was found to be flat. Both the number one and number two tires were replaced, and the flight departed forty minutes late. On teardown, a 2½-inch washer was found inside tire number one—it had passed completely through the carcass. Just goes to show that the junk we run over on the ramp doesn't even have to be sharp to cause serious damage to a tire.

—Adapted from *Flight Facts*

A Penstroke of Prevention

On a typically busy training mission recently, an aircraft made several shortfield landings with students at the controls. On one of the touchdowns, the crew felt the neophyte tactical trainee had impacted a tad more "solidly" than normal, and they decided to enter a remark to that effect in the AFTO Form 781. Later, maintenance inspectors turned up a cracked left aft main landing gear beam. There are no standards written down anyplace which clearly define exactly what a "hard" landing is, but aircrews should be obliged to make a 781 entry anytime an element of doubt exists. Documenting *all* aircraft discrepancies, but especially potential or even suspected airframe overstress, can be a very effective way of alerting the maintenance folks to look out for trouble. The AC's decision to write up the hard landing in this example probably prevented a serious landing gear failure mishap a little further down the line.

Hot Box

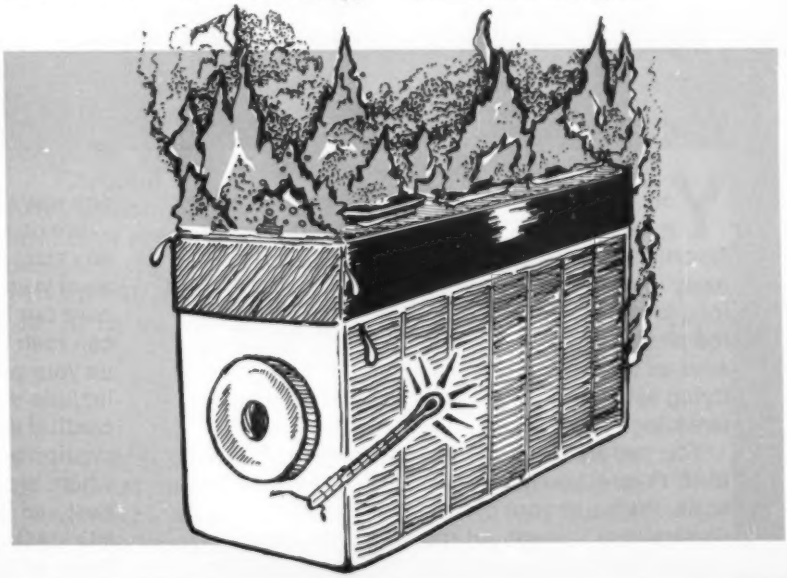
Most of us have read about fire prevention and seen enough movies and demonstrations to feel confident that we could handle at least a small conflagration. When an electrical fire occurred on a helicopter not long ago, however, the pilot involved found out that things don't always go the way they're supposed to. After mashing the starter switch on his TH-1F, the pilot heard a loud pop. He turned off the battery switch but still saw and smelled smoke coming from beneath the instrument panel, so he evacuated the passengers. Taking the aircraft's hand-feld fire extinguisher to the battery compartment, he sprayed the fire but it wouldn't go out. Tossing aside the useless aircraft bottle when it appeared it was actually fanning and increasing the flames, the pilot grabbed the CO_2 extinguisher from the helipad and started using it. When the flames appeared out, he ceased spraying, only to have them flare up again. About this time somebody disconnected the battery, and with another dose of agent, the fire stayed out once and for all. Fortunately damage was confined to the helo's battery box area. Purposely omitting for now a discussion of the faulty fire bottle, the following lessons came out of this heated little episode:

★ Regardless of the type of agent used on an electrical fire, it may not be completely put out until power is removed from the circuit.

★ Turning off the cockpit battery switch may not always remove power, but it should be turned off anyway as a precaution.

★ On all fires, the discharge should be directed at the base of the flames, and should be applied to the burned surface long enough after the flames are out to allow for cooling and possible reflash.

★ In confined areas like cockpits, care should be taken to avoid breathing gasses produced by thermal decomposition of the agent.



PICTURES PLEASE

You may have just the photo we've been after to tell an important safety story about your favorite aircraft, unit or job. That's right—tucked away in your slide trays, scrap book, or under your long johns in the bottom dresser drawer may be the photo we need. One good action photo can save us several thousand words and make *your* flying safety magazine more graphic and interesting.

You can see your photos in the pages of *The MAC Flyer* if you'll just take the time to send them to us. We'll use your pictures in general illustrations throughout the magazine, and of course, we'll make sure that they're not used in any way that might embarrass you or your unit.

We can use black and white or color prints of any size, as well as negatives or slides. If you want your picture returned, just tell us and we'll have our AAVS tintypers make a duplicate so we can rush your photo back to you. When you send us your photographic masterpiece, be sure to include your name and address so we can give you credit if we print the picture. Also, some sort of caption or short description of the "who, what, when, etc" is nice to have so we can decide how to best use it. Send your photos to:

HQ MAC/IGFE
Scott AFB, IL 62225

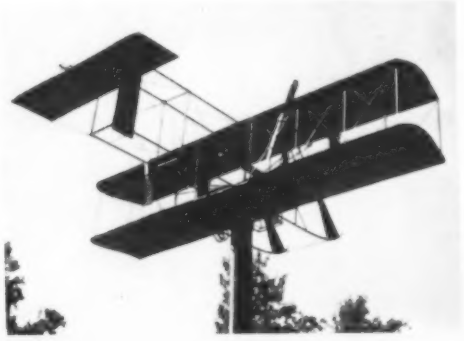
AFTER DEADLINES

MAC's FLEET OF C-5s recently logged over 400,000 hours and carried more than 4-billion ton-miles of cargo. The Galaxy has amply demonstrated its unique ability to project national policy in numerous international crises around the world. Among its many records and firsts, the world's largest airplane is the only airlifter ever to be credited as a two-in-a-row winner of the Mackay Trophy. During 1977 and again in 1978, crews from the 436 MAW, Dover AFB, Del., flew Galaxies on missions that were judged the most significant USAF flights of the year.

ZAIRE AIRLIFT RECENTLY ENDED with the withdrawal of the Inter-African Peacekeeping Forces from central Afica. The eight-day operation moved 1,400 passengers and 1.2-million pounds of cargo aboard C-141s from Zaire to Morocco, Senegal, Ivory Coast and Togo. These missions marked the end of MAC's help for the embattled Shaba Province that began in May 1978.

MAC AWARDED $129-MILLION TO COMMERCIAL AIRLINES for airlilft support during fiscal year 1980. These contracts are the DOD's purchase of international airlift for known needs of fiscal '80. More commercial flights will be bought to fill additional requirements as major projects are firmed up. The largest single contract went to World Airways for $35,966,586. All the contractors are members of the Civil Reserve Air Fleet (CRAF).

A 1917 BIPLANE REPLICA with a six-foot wingspan flies atop a new monument to Corporal Frank Scott. He was killed in the 1912 crash of a Wright aeroplane at College Park, Md. Corporal Scott was the first Army enlisted man to die in an aircraft acci dent. Scott AFB, home of HQ MAC, is the only USAF installation named after an enlisted person.



THE NOVEMBER ISSUE OF TMF will announce the opening of the 1980 MAC Flying Safety Writing Contest, along with the results of our biennial readership survey. November's centerfold will display a new feature covering airlift aircraft of the "competition."

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I'm really sorry about the short notice, Cranston,
but you're the only one available to fly right now...